

miscellaneous processes, such as the manufacture of threads, twines, cords, and ropes, while chapters xviii. to xxi. treat on general mill management, arrangement, and engineering.

In the first section, very interesting and useful particulars are supplied respecting the fibres and their marketing, the only difficulty being the grasping of the multitude of details here given. Had these details been represented by maps illustrating (a) area of growth, (b) area of manufacture, (c) area of distribution and use of the fibres in question, with graphical illustrations of quantities, &c., the facts presented would have been vastly more interesting and useful. This method, we believe, is employed in the textile museums of certain of our northern technical colleges.

The author wisely remarks in his preface that were it not for the similarity in the processes necessary for the preparation and spinning of many of the fibres here treated, it would be impossible to bring the work within reasonable limits. The similarity in treatment is certainly marked, and practically leads the author throughout to the employment of the "comparative method." Thus, in the first preparation of ramie, the hand and the chemical or mechanical methods are naturally compared with reference to quality of result and price, this latter necessarily involving the question of native hand-labour *versus* European machine-labour. Then the difference between ramie and flax is naturally noted, and so on.

The comparative method would naturally arrange itself under some six heads:—(1) methods of dealing with the fibres in the raw state commercially; (2) methods of preparing, that is, of cleaning for the subsequent mechanical operations; (3) ultimate length, diameter, colour, &c., of the fibres; (4) the conditions for preparation of the fibres as necessarily deciding the types of machines required; (5) the types of machines for each quality of fibre; (6) value of resultant thread or fabric as revealed by scientific and "use" tests.

This is approximately the grouping employed. The greater proportion of the book is devoted to the mechanical side, and it must be recognised that this is just, as in many cases not only has the machine taken the place of the hand method, but actually does what would be impossible without mechanical aid. Perhaps one of the most interesting comparisons in the book is that afforded by chapters xii. and xiii., in which dry, semi-dry, and wet methods of spinning are successively dealt with.

The section dealing with threads, twines, ropes, &c., is chiefly interesting as introducing machines which are practically unknown in the ordinary textile industries. It very often happens that principles developed in one industry would be of great value in another were they known; in this way the present work may indirectly be of considerable use to industries other than those specially dealt with.

Chapter xviii. deals in an interesting manner with the mechanical department, including the hackle setting, wood turning, fluting, oils, and oiling; this is certainly a useful chapter for the ordinary mill

manager. Chapters xix., xx., and xxi., however, in our opinion, are somewhat out of place, it being impossible satisfactorily to consider modern mill construction, boilers and engines, steam and water power, and electric power transmission in the fifty-six pages devoted to this subject. Mere statement, usually very excellent, is all that is possible. We would, however, question the advice given respecting electric lighting in factories. There is a marked tendency to revert to incandescent gas lighting, not only on account of the expense, but also on account of the light value.

The work is not only to be commended to those engaged in the particular trades in question, but also to those engaged in the allied textile industries, as such questions as the position of the nip of the rollers in relation to the spindle and with reference to length of fibre, the varieties of gills employed, Combe's expansion pulley and quick change motion in place of the cones in cone drawing frames, &c., constitute interesting mechanical arrangements which may be of marked value in these allied industries.

The work is illustrated by 161 figures, usually of a most interesting type. The general arrangement is certainly such as will commend itself to the mill manager, who will naturally wish to refer to the work under conditions requiring speed and accuracy.

ALDRED F. BARKER.

ENGLISH ESTATE FORESTRY.

English Estate Forestry. By A. C. Forbes. Pp. xi+332. (London: Edward Arnold, 1904.) Price 12s. 6d. net.

AS the title suggests, the book is intended for the instruction of English foresters. In the preface, the author states that he feels,

"probably in common with many practical foresters, that English forestry is sufficiently distinct from Continental, or even Scotch forestry to entitle it to be regarded as a separate subject."

The author further emphasises this point in his chapter on thinning and pruning, where he seems to hint that all the mistakes and failures in English sylviculture, about the middle of the nineteenth century, were due to the bad influence of Scotch forestry and Scotch foresters, who, according to Mr. Forbes, were imported into England about that time, bringing with them their mistaken ideas of thinning and pruning, to the detriment of English forestry.

The following extract from the preface gives the author's own views regarding the book:—

"This book is intended to be suggestive rather than instructive to the practical forester. There is little in its pages but what he already knows, and possibly a great deal with which he will not agree. But as a more or less faithful record of individual experience it is offered as a small contribution to forestry literature, which, if it does not enrich, it will not, it is hoped, disgrace."

The concluding paragraph of the preface states "that this book is not, nor does it make a pretence of being, a text-book. The intelligent reader, therefore, who discovers that it does not contain a planter's

guide, nor a reference to more than *one* work on German forestry, is requested not to despise it on that account, nor to conclude prematurely that the author has written on a subject he knows nothing about."

The book is a fairly bulky one, and consists of thirteen chapters and twenty-three illustrations, representing different woodland scenes. The opening chapter gives an interesting historical account of English forests and the origin of forestry. The present conditions, the future prospects and possibilities of extended afforestation are next dealt with. The sylvicultural treatment of the commoner coniferous and deciduous trees, and the financial results to be derived therefrom, is a chapter which will be read with interest by proprietor and forester alike. Planting and natural regeneration are dealt with in a satisfactory manner. A chapter on the measurement of timber and its selling value contains much information, which will be of the greatest use to the English estate forester. The home nursery and forest management receive their due share of attention. The author has not forgotten the arboricultural aspect of the forester's profession. His chapters on landscape forestry and park and avenue trees are written with much artistic feeling, and contain many valuable suggestions. The more important injurious fungi and animals, including insects, are dealt with in a chapter under the heading "Enemies of English Woodlands." It deals with only a few of the outstanding pests which are of practical importance. There is probably no pest about which more has been said or written than the larch canker disease, and we find the author is no exception to the rule. A great many pages are devoted to this disease alone. It consists essentially of a criticism of all the theories that have been advanced regarding the disease since the introduction of the larch. Much of what he says is undoubtedly true, but we must confess we find great difficulty in following the author through many of his arguments, especially those which are based upon purely suppositional grounds.

Regarding the book as a whole, we find a great deal of historical detail in its pages. Past and present methods are criticised without reserve. It will not replace any of the already existing text-books intended for the instruction of the young forester, but as an addition to our existing literature on forestry we may recommend its perusal to those interested in the subject.

OUR BOOK SHELF.

Index Kewensis Plantarum Phanerogamarum. Supplementum secundum, nomina et synonyma omnium generum et specierum ab initio anni MDCCCXCVI usque ad finem anni MDCCCC complectens. Ductu et consilio W. T. Thiselton-Dyer confecerunt herbarii horti regii botanici Kewensis curatores. Abama-Leucocoryne. Pp. 103. (Oxford: Clarendon Press, 1904.) Price 12s. net.

WORKERS at the systematic botany of seed-plants, and all who are concerned that plants should have their right names, will welcome the appearance of this latest

instalment of a well-known work of reference. The original "Index Kewensis," the monumental work owed to Sir Joseph Hooker and Mr. Daydon Jackson, gives the reference for generic and specific names published up to 1885. For names published during the next ten years we have the first supplement, the work of M. Durand, of Brussels, and Mr. Jackson. This makes but slow progress, and has now reached Ph; the last number appeared at the end of November, 1903. Hence, while the present instalment carries us, for the first half of the alphabet, to the end of last century, as regards the last ten letters we are twenty years behind time!

As implied in the heading, the supplement includes not only new names, but also synonyms, that is, those names which, in works published in the interval in question, have been transferred to other genera or regarded as identical with names previously published. Thus the eight names under *Eriachne* represent old species, chiefly of Nees, which more recent workers have transferred to *Achneria*. The inclusion of synonymy, while undoubtedly of value, must add considerably to the labour of preparation. Moreover, while in some cases the citation of a name as a synonym is amply justified, it is in others merely the expression of the opinion of one school of botanists, or perhaps only of an individual worker, on a matter about which perhaps much may be said on both sides. In our opinion the great use of the "Index" is that implied in its title; the working botanist wants a list containing every published name, he wants it as soon as possible after publication, and to get an exhaustive and up-to-date index he will sacrifice much in the way of botanical comment, however valuable. Refer him to the place and date of publication, and you will earn his lasting gratitude. He should be able to draw his own conclusions as to the relative value of the names.

The omission of the date from the references is, we think, matter for regret; it would have involved but very little additional labour at the time; moreover, it is given in the first supplement, an improvement instituted by Messrs. Durand and Jackson. There are also other omissions which we shall hope to see rectified in an appendix or addendum. A. B. R.

Birds I have Known. By Arthur H. Beavan. Pp. 256. (London: T. Fisher Unwin, 1905.) Price 5s.

THIS little book records the author's "experience of birds during many years in many lands and on many seas . . . its sole purpose being to bring to its readers' notice the ways and habits of these beautiful creatures of the Almighty."

With such a preface, and after the author's assurance that he prefers the unquestioning belief of his little son in the Bible story of Creation to the Darwinian theory of evolution, we are a little taken aback at the author's treatment of the Creator's handiwork.

"I have always loved the birds," he protests. Unfortunate birds! His earliest manifestation of this love was, on his own confession, to endeavour to catch them with the proverbial pinch of salt! Age brought wisdom, however, and with the judgment of mature years a piece of pork concealing a fish-hook was found more efficacious!

In other places he naively describes the patience he displayed in waylaying with a gun such rare birds as he happened to discover. Descanting upon the glories of Cornwall as a happy hunting-ground, he gives a list of the rarities that may turn up here during gales, enumerating such species as the golden oriole, Bohemian waxwing, hoopoe, and spoonbill—just those, in short, which the true bird-lover is most anxious to protect. The chance of killing such